

100

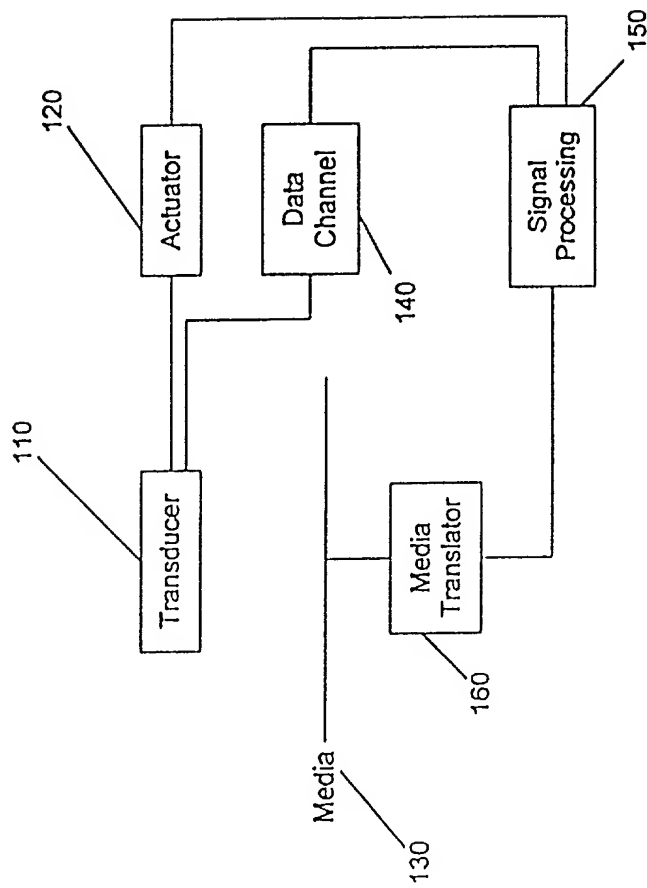


Fig. 1

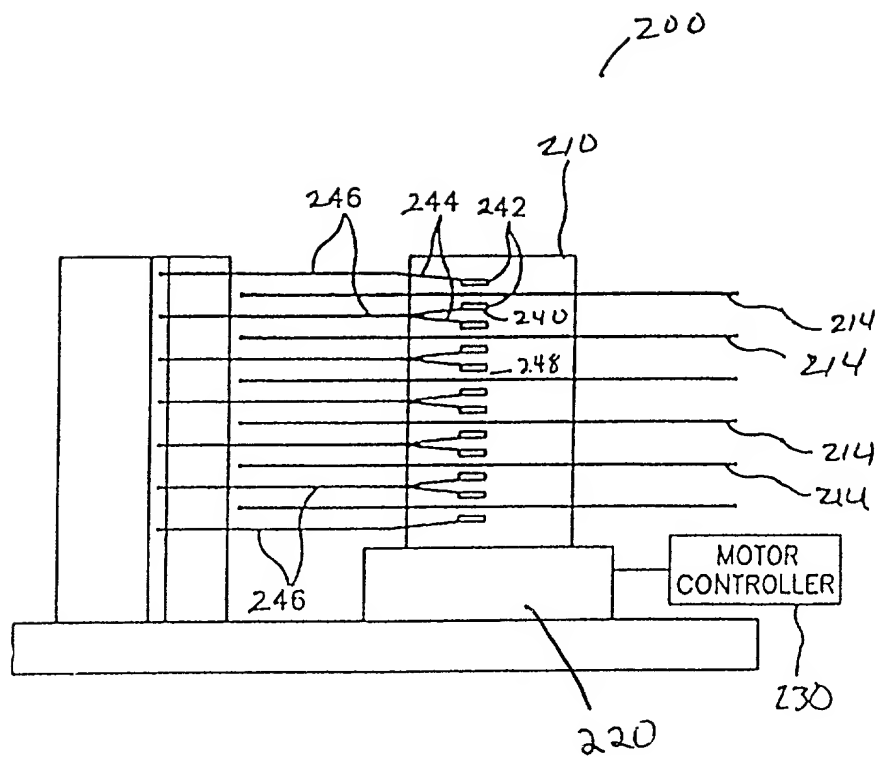
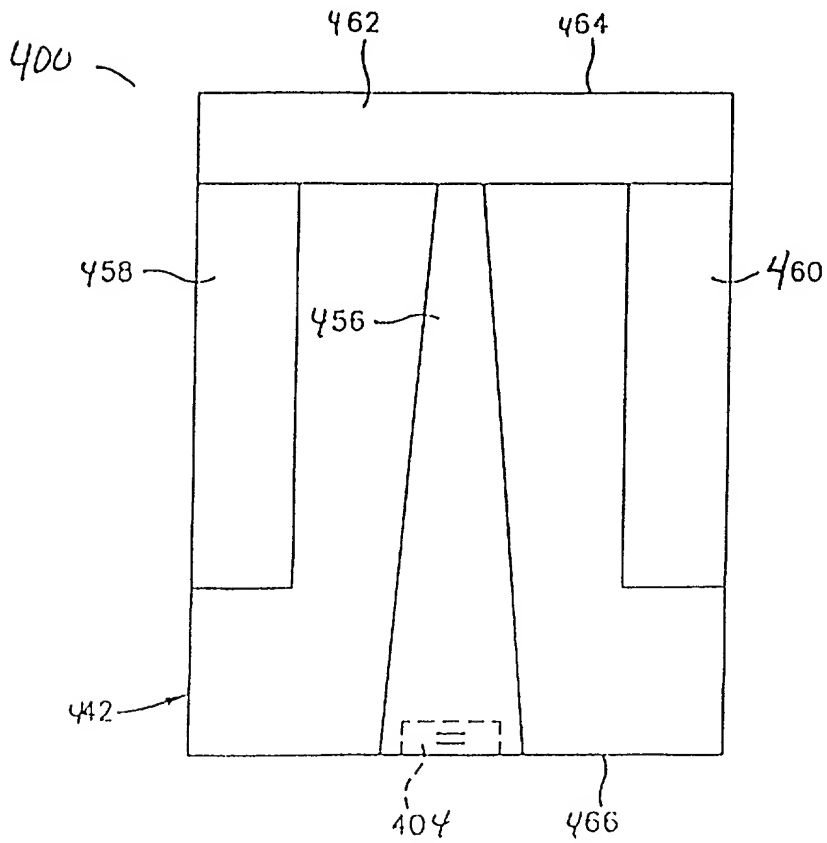
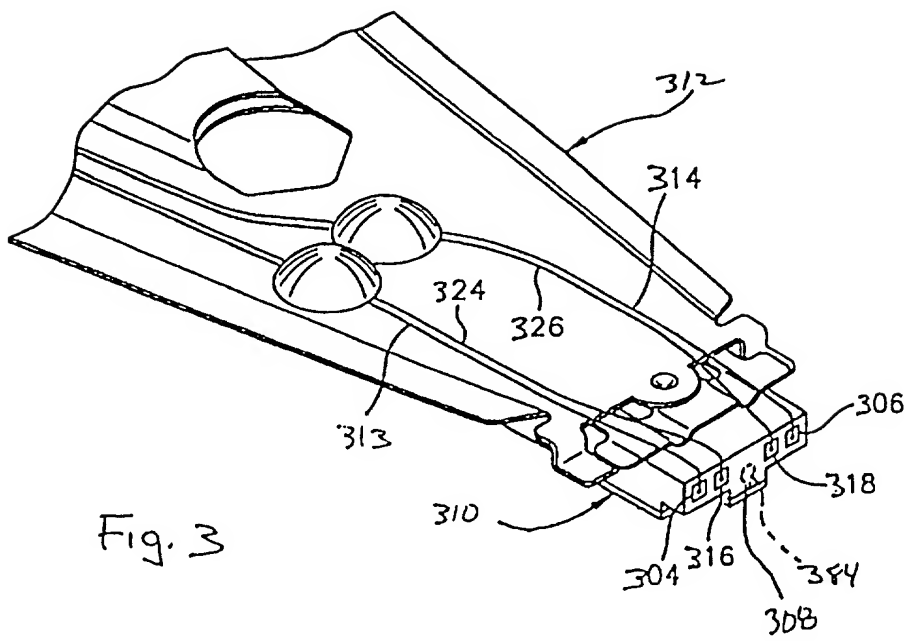
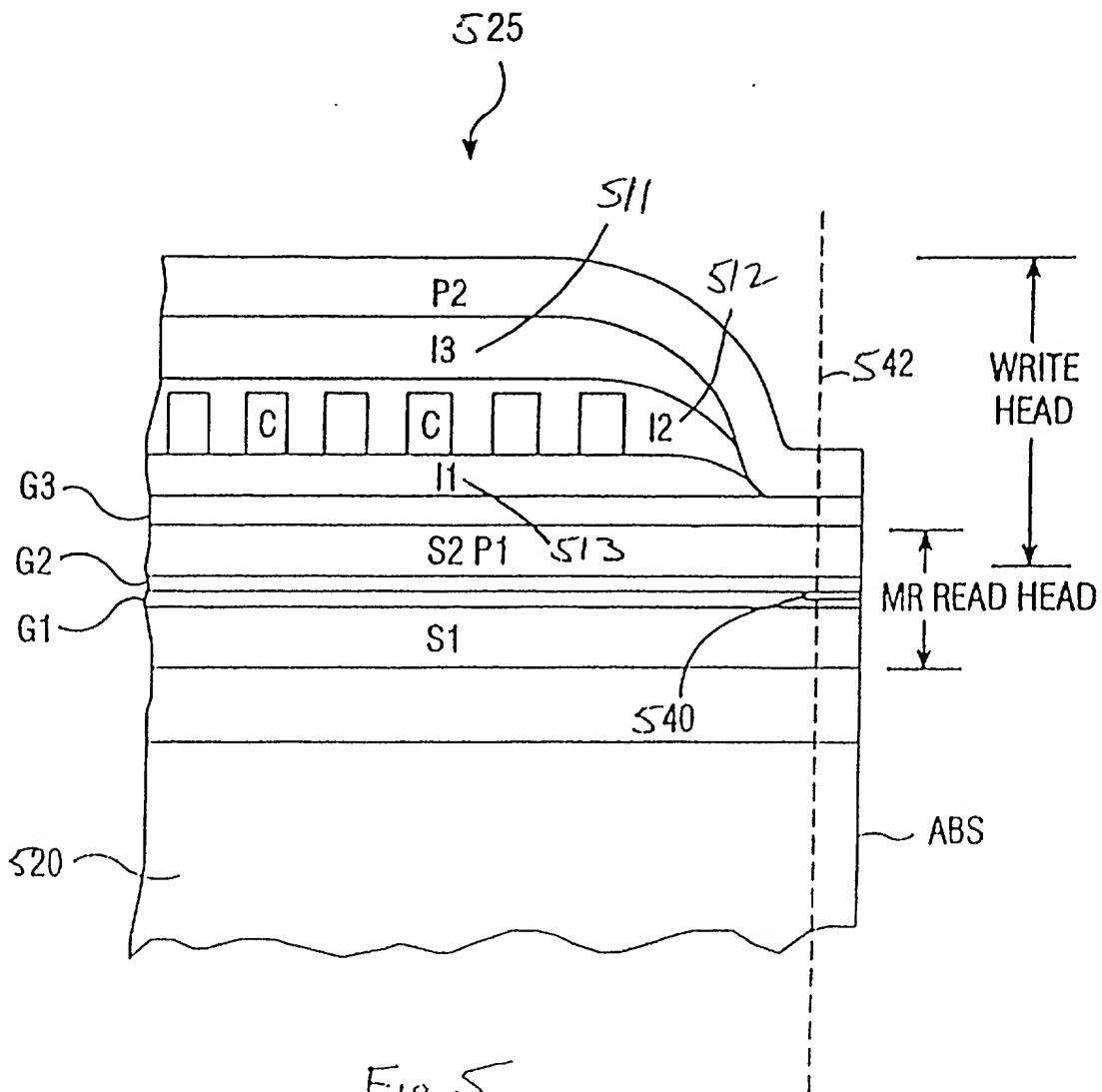


Fig. 2





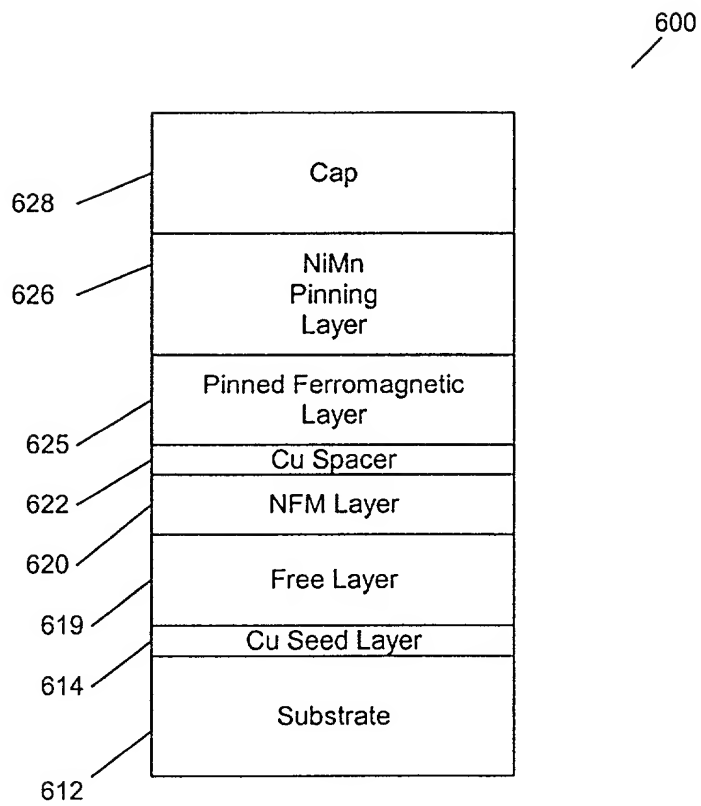


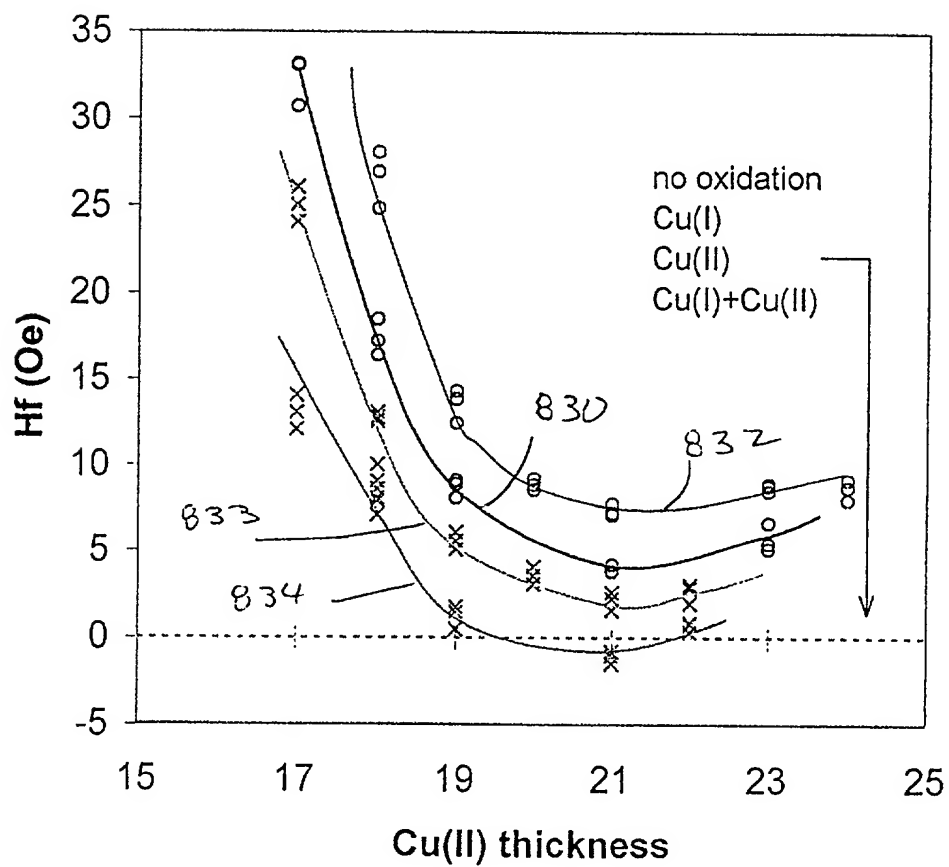
Fig. 6

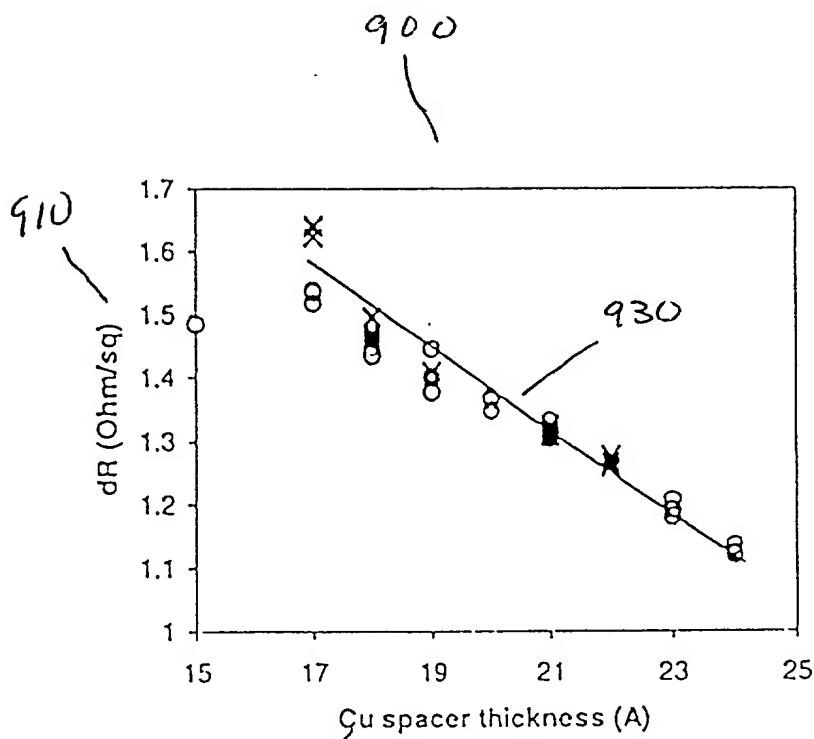
	As-deposited free layer		Annealed free layer at 250°, 5 hrs	
	$\lambda_i$	$\lambda_b$	$\lambda_i$	$\lambda_b$
Without oxidation	$6 \times 10^{-3} \text{ \AA}$	$-3.2 \times 10^{-6} \text{ \AA}$	$8 \times 10^{-3} \text{ \AA}$	$-0.9 \times 10^{-6} \text{ \AA}$
With Cu seed and spacer oxidation	$4 \times 10^{-3} \text{ \AA}$	$-3.1 \times 10^{-6} \text{ \AA}$	$4 \times 10^{-3} \text{ \AA}$	$-1.5 \times 10^{-5} \text{ \AA}$

Fig. 7

800  
1

Hf vs Cu spacer thickness





920

Fig. 9



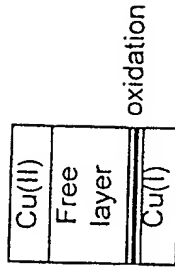
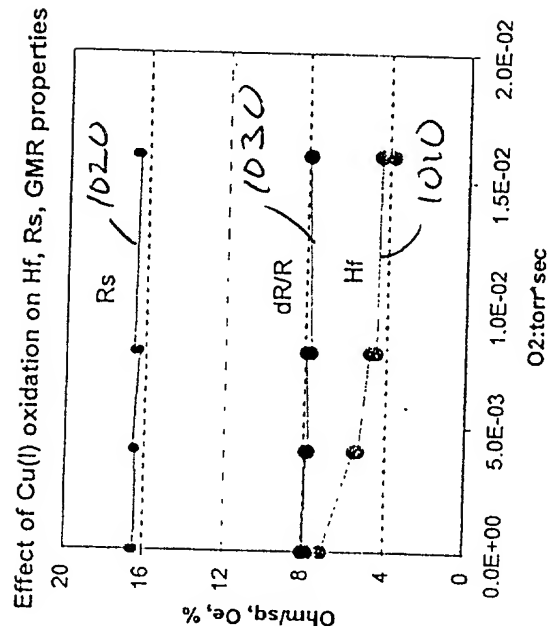


Fig. 10

1100

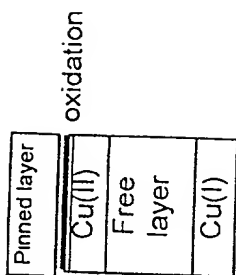
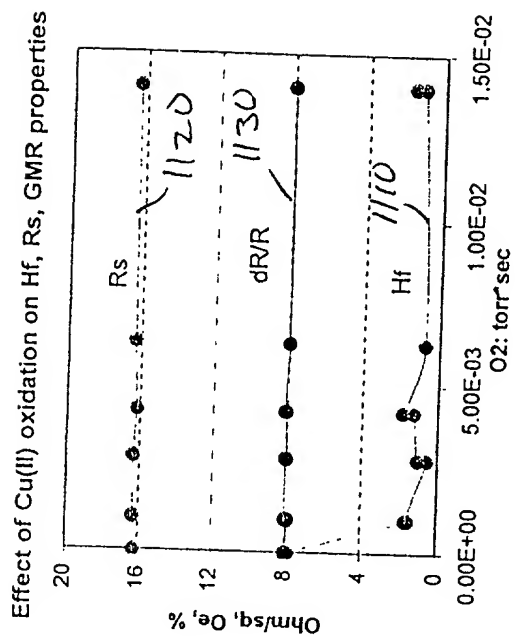


Fig. 11

1200

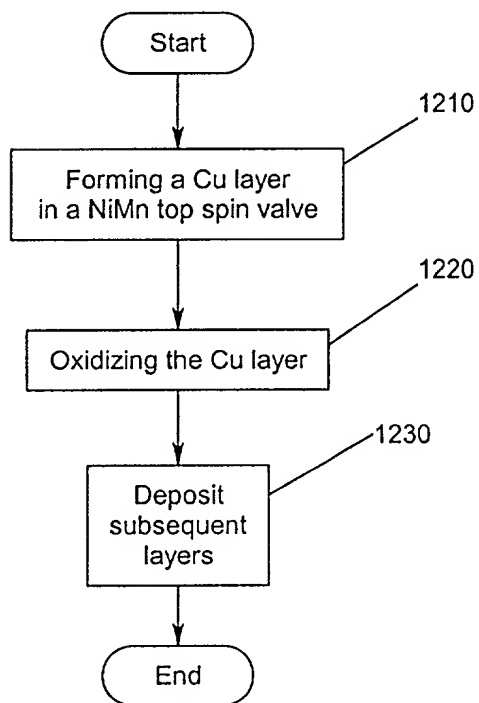


Fig. 12